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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
FLEURANTIN, JEAN B

ART UNIT	PAPER NUMBER
2172	

DATE MAILED: 11/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/263,068	PECHENY, BORIS	
	Examiner	Art Unit	
	Jean B Fleurantin	2172	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 August 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *15 and 30* is/are allowed.

6)☒ Claim(s) *1-5,16-20 and 31-36* is/are rejected.

7)☒ Claim(s) *6-14 and 21-29* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Amendment

1. Claims 35 and 36 are added.

Claims 1-36 are remained pending for examination.

2. Applicant's arguments filed on 08/05/02 have been fully considered but they are not persuasive. Examiner discusses new added claims 35 and 36 in the following rejection.

Response to Applicant' Remarks

3. Applicant stated on page 12, that the reference of Li does not disclose a method in which a lexical container or hash table from among a plurality of lexicon based on "a lengths of a key." However, Examiner disagrees because Cohen includes it is desirable to record information that associates one set of keyword hash address values with keyword length information for false alarm reduction, recording such information is illustrated here by using the mth keyword hash address as an address to record information about the current keyword's length in a length enabling table (see col. 8, lines 36-46). Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the teachings of Li and Cohen with length of the key. This modification would allow the teachings of Li and Cohen to improve the performance of the lexical cache, and provide distinct length of the keyword in the dictionary (see col. 4, lines 52-53).

Applicant stated on page 13, that "there is no disclosure that the hash tables is configured to hold a different number of key values than at least another one of the hash tables." However, Examiner disagrees because Cohen includes the jth hash table is consulted the presence value there is read and is appended to the jth of a set of m presence value streams, thereby forming said presence value stream the sample hash address is used to extract length information in the form of a length-enabling word about keywords possessing the same mth hash address, (see cols. 8-9, lines 62-4). Further, in column 4, lines 41 through 45, Cohen teaches reading m sample presence values from the m hash tables the jth of the m sample presence values obtained by reading the presence value from the jth of the m hash tables at the address identified by the jth of the m sample hash addresses. Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the teachings of Li and Cohen with hash tables is configured to hold a different number of key values than at least another one of the hash tables. This modification would allow the teachings of Li and Cohen to improve the performance of the lexical cache.

In response to Applicant's argument that "the hash tables is configured to hold a different number of key values than at least another one of the hash tables," does not include certain features of Applicant's invention, the limitations on which the Applicant relies (the hash tables is configured to hold a different number of key values than at least another one of the hash tables) are not stated in the claims 1, 16, 31, 32 and 35. It is the claims that define the claimed

invention, it is claims, not specifications that are anticipated or unpatentable. Constant v. Advanced Micro-Devices Inc., 7 USPQ2d 1064.

Claim Rejections - 35 U.S.C. § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-5, 16-20 and 31-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li et al. (US Pat. No. 5,774,588) in view of Cohen (US Pat. No. 6,169,969) ("Li"), ("Cohen").

As per claims 1, 16, 31-32 and 35, Li teaches a method of searching for a string in a lexical cache (thus, direct comparison of an input string to a large number of dictionary entries comparing n-gram representations may also consume a large amount of computational time, also if a system encodes an entire lexicon with non-positional n-gram encoding a match does not mean that the string is a dictionary word this ambiguity arises because one only determines if there is a common characteristic with the dictionary as a whole, on the other hand n-gram comparisons have the benefit of simple binary inexact matching are faster than many other comparison schemes and can save some space when the string and dictionary entries are hashed to sets of possible n-grams; which is readable as searching for a string in a lexical cache) (see col. 2, lines 15-26), as claimed comprises the computer implemented steps of generating a key based

on the string (thus, the step of indexing the entries preferably comprises determining a set of group numerical values, which is readable as generating a key based on the string) (see col. 3, lines 8-11);

searching the lexical container for an entry associated with the string based on the key (thus, direct comparison of an input string to a large number of dictionary entries comparing n-gram representations may also consume a large amount of computational time, also if a system encodes an entire lexicon with non-positional n-gram encoding, a match does not mean that the string is a dictionary word this ambiguity arises because one only determines if there is a common characteristic with the dictionary as a whole, on the other hand n-gram comparisons have the benefit of simple binary inexact matching are faster than many other comparison schemes and can save some space when the string and dictionary entries are hashed to sets of possible n-grams; which is readable as searching the lexical container for an entry associated with the string) (see col. 2, lines 15-26),

wherein at least one of the lexical containers is configured to hold a different number of entries than at least another one of the lexical containers (thus, another dictionary limiting approach has been to use the first three characters of the string as a retrieving key, that is only those entries in the dictionary which share the first three characters of the unverified string are considered; which is readable as wherein at least one of the lexical containers is configured to hold a different number of entries than at least another one of the lexical containers) (see col. 1, lines 43-46). But, Li does not explicitly indicate a length of the key. However, Cohen strongly

suggests each distinct length of the keywords in the keyword dictionary, (see col. 11, lines 41-44). Further, in columns 4 and 6, lines 50 through 54 and 49 through 52, Cohen teaches steps of calculating m delaying additively complementary to the m n-gram selection positions respectively for the distinct length of the keywords in the dictionary; and one may record the lengths of the keywords associated with each hash address produced by $(\text{hash function})_q$. Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the teachings of Li and Cohen with length of the key. This modification would allow the teachings of Li and Cohen to improve the performance of the lexical cache, and provide a distinct length of keywords in the dictionary m n-gram selection positions (see col. 4, lines 20-21).

As per claims 2, 4, 17 and 19, Li teaches a method as claimed, wherein steps of generating a key based on the string includes the step of compressing the string to produce the key (thus, indexing of the lexicon entries produces a fixed result for a given lexicon, which is readable as generating a key based on the string includes the step of compressing the string to produce the key) (see col. 3, lines 27-28).

As per claims 3 and 18, Li teaches a method as claimed, wherein steps of compressing the string to produce the key includes the step of performing an n-gram compression on the string (thus, the step of partitioning a representation of an entry comprises forming an n-gram vector representing the entry folding the n-gram vector into a signature vector of reduced bit length; which is readable as wherein the step of compressing the string to produce the key includes the

step of performing an n-gram compression on the string) (see col. 3, lines 1-4); also in column 14, lines 49 through 50, Li further teaches steps of folding said n-gram vector into a signature vector by combining multiple n-gram into bits.

As per claims 5 and 20, the limitations of claims 5 and 20 are rejected in the analysis of claim 1, and these claims are rejected on that basis.

As per claims 33 and 34, in addition to the discussion in claim 1, Li further teaches the first lexical container is configured to hold more entries that the second lexical container (thus, a second portion of the lexicon comprising some of the entries of the first portion by directly comparing an encoded representation of the unverified string with encoded representations of the entries of the first portion of the lexicon, which is readable as the first lexical container is configured to hold more entries that the second lexical container) (see col. 4, lines 29-33).

As per claim 36, the limitations of claim 36 are rejected in the analysis of claim 1, and this claim is rejected on that basis.

Allowable Subject Matter

5. Claims 6-14 and 21-29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is an examiner's statement of reasons for allowance:

As per claims 15 and 30, the present application has been thoroughly reviewed. Upon extensive diverse databases searches, and a full review of applicant arguments, the examiner

deems that the claimed features "each of said sequences of slots corresponding to a respective hash value and a number of the slots being based on a respective key length, wherein at least one of the hash tables is configured to hold a different number of slots than at least another one of the hash tables" in conjunction with other elements of the claims would not found anticipated or obvious over the prior art made of record.

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

8. Any inquiry concerning this communication from examiner should be directed to Jean Bolte Fleurantin at (703) 308-6718. The examiner can normally be reached on Monday through Friday from 7:30 A.M. to 6:00 P.M.

If any attempt to reach the examiner by telephone is unsuccessful, the examiner's supervisor, Mrs. KIM VU can be reached at **(703) 305-8449.** The FAX phone numbers for the Group 2100 Customer Service Center are: ***After Final* (703) 746-7238**, ***Official* (703) 746-7239**, and ***Non-Official (703) 746-7240***. NOTE: Documents transmitted by facsimile will be entered as official documents on the file wrapper unless clearly marked "***DRAFT***".

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group 2100 Customer Service Center receptionist whose telephone numbers are **(703) 306-5631, (703) 306-5632, (703) 306-5633**.

Jean Bolte Fleurantin

November 2, 2002

JBF/

KIM VU
SUPERVISORY PATENT EXAMINER
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